

FORM PTO-1390 (Modified)
(REV 10-95)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371

1938

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

10/030833

INTERNATIONAL APPLICATION NO.
PCT/DE 00/02197

INTERNATIONAL FILING DATE
JULY 5, 2000

PRIORITY DATE CLAIMED
JULY 17, 1999

TITLE OF INVENTION

SENSOR FOR OPTICAL DETECTION OF FOREIGN BODIES, IN PARTICULAR RAINDROPS, ON A WINDOW

APPLICANT(S) FOR DO/EO/US

Patrick SCHMITT, Norbert HOG, Bruno HODAPP, Rainer PIENTKA, Hans MEIER, Henry BLITZKE, Martin HAGER, Manfred BURKART, Jochen BENZ

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
 - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ A copy of the International Search Report (PCT/ISA/210).
8. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
9. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 13 to 18 below concern document(s) or information included:

13. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
A **SECOND** or **SUBSEQUENT** preliminary amendment.
16. ☐ A substitute specification.
17. ☐ A change of power of attorney and/or address letter.
18. ☒ Certificate of Mailing by Express Mail
19. ☐ Other items or information:

ET 755 324 124 US

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

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1938

20. The following fees are submitted:

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

- ☐ Search Report has been prepared by the EPO or JPO \$930.00
- ☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) \$720.00
- ☐ No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) \$790.00
- ☒ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$1,070.00
- ☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) \$98.00

ENTER APPROPRIATE BASIC FEE AMOUNT =

\$890.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).

\$0.00

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE
Total claims	14 - 20 =	0	x \$18.00
Independent claims	2 - 3 =	0	x \$80.00

\$0.00

\$0.00

Multiple Dependent Claims (check if applicable). ☐

\$0.00

TOTAL OF ABOVE CALCULATIONS =

\$890.00

Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) (check if applicable). ☐

\$0.00

SUBTOTAL =

\$890.00

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).

\$0.00

TOTAL NATIONAL FEE =

\$890.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable). ☐

\$0.00

TOTAL FEES ENCLOSED =

\$890.00

Amount to be:
refunded \$
charged \$

- ☐ A check in the amount of _____ to cover the above fees is enclosed.
- ☒ Please charge my Deposit Account No. **19-4675** in the amount of **\$890.00** to cover the above fees.
A duplicate copy of this sheet is enclosed.
- ☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **19-4675** A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

STRIKER, STRIKER & STENBY
103 EAST NECK ROAD
HUNTINGTON, NEW YORK 11743

SIGNATURE

MICHAEL J. STRIKER

NAME

27233

REGISTRATION NUMBER

JANUARY 10, 2002

DATE

10/030833

531 Rec'd PCT/F 10 JAN 2002

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner:

Group:

Attorney Docket # 19389

Applicant(s) : SCMITT, P., ET AL

Serial No. :

Filed :

For : SENSOR FOR OPTICAL DETECTION OF FOREIGN
BODIES, IN PARTICULAR RAINDROPS, ON A
WINDOW

SIMULTANEOUS AMENDMENT

January 10, 2002

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

S I R S:

Simultaneously with filing of the above identified application
please amend the same as follows:

In the Claims:

Cancel all claims without prejudice.

Substitute the claims attached hereto.

REMARKS:

This Amendment is submitted simultaneously with filing of the above identified
application.


With the present Amendment applicant has amended the claims so as to eliminate
their multiple dependency.

201110-041103

10/030853
531 Rec'd PCT/77 10 JAN 2002

Consideration and allowance of the present application is most respectfully requested.

Respectfully submitted,



Michael J. Striker
Attorney for Applicant(s)
Reg. No. 27233

10030853-044102

Claims

1. A sensor (10) for optical detection of foreign bodies, in particular raindrops, on a window, in particular on the windshield of a motor vehicle, having a sensor element (21) that can be coupled to the inside of the window, having at least one fastening device (16) to be fastened, preferably glued, to the window, and having a housing part (12) that contains at least the sensor element (21), where the sensor element (21) can be coupled to the window (18) by means of spring force, characterized in that the housing part (12) has at least one fastening part (14) attached to it, which can be brought into engagement with the fastening device (16) by means of clamping tension.

2. The sensor according to claim 1, characterized in that the sensor element (21) is affixed to the housing part (12).

3. The sensor according to one of claims 1 [or 2], characterized in that two fastening parts (14) are disposed opposite each other on the housing part (12).

4. The sensor according to [one of the preceding claims] claim 1, characterized in that the at least one fastening device (16) has pins (20) for engaging with the at least one fastening part (14).

5. The sensor according to claim 4, characterized in that the at least one fastening part (14) has recesses (29) for receiving the pins (20) in the installed position.

6. The sensor according to [one of the preceding claims] claim 1, characterized in that the at least one fastening part (14) is attached to the housing part (12) in a movable, preferably pivotable, fashion and has elastic properties.

7. The sensor according to [one of the preceding claims] claim 1, characterized in that the at least one fastening part (14) can be brought into engagement with the at least one fastening device (16) by means of an oblique plane (28).

8. The sensor according to [one of the preceding claims] claim 1, characterized in that the at least one fastening part (14) has an oblong formation (24) on its exterior.

9. The sensor according to [one of the preceding claims] claim 1, characterized in that the at least one fastening part (14) is a stamped and bent part.

10. The sensor according to [one of claims 1 to 8] claim 1, characterized in that the at least one fastening part (14) is an injection molded plastic part.

11. The sensor according to [one of the preceding claims] claim 1, characterized in that the fastening device (16) is embodied as being of one piece.

12. The sensor according to [one of the preceding claims] claim 1, characterized in that the housing part (12) can be inserted in a collar-like fashion into the fastening device (16).

13. The sensor according to [one of the preceding claims] claim 1, characterized in that the sensor element (21) is fastened in the housing part (12) by being clipped into it.

14. A sensor (10) for optical detection of foreign bodies, in particular raindrops, on a window, in particular on the windshield of a motor vehicle, having a sensor element (21) that can be coupled to the inside of the window, having at least one fastening device (16) to be fastened, preferably glued, to the window, and having a housing part (12) that contains at least the sensor element (21), where the sensor element (21) can be coupled to the window (18) by means of spring force, characterized by means of a design that is comprised of at least 3 components, in particular an optical body with a coupling medium, a plate with at least one transmitter and receiver, and a housing part (12) with the fastening parts (14).

Claims

1. A sensor (10) for optical detection of foreign bodies, in particular raindrops, on a window, in particular on the windshield of a motor vehicle, having a sensor element (21) that can be coupled to the inside of the window, having at least one fastening device (16) to be fastened, preferably glued, to the window, and having a housing part (12) that contains at least the sensor element (21), where the sensor element (21) can be coupled to the window (18) by means of spring force, characterized in that the housing part (12) has at least one fastening part (14) attached to it, which can be brought into engagement with the fastening device (16) by means of clamping tension.

2. The sensor according to claim 1, characterized in that the sensor element (21) is affixed to the housing part (12).

3. The sensor according to one of claims 1, characterized in that two fastening parts (14) are disposed opposite each other on the housing part (12).

4. The sensor according to claim 1, characterized in that the at least one fastening device (16) has pins (20) for engaging with the at least one fastening part (14).

5. The sensor according to claim 4, characterized in that the at least one fastening part (14) has recesses (29) for receiving the pins (20) in the installed position.

6. The sensor according to claim 1, characterized in that the at least one fastening part (14) is attached to the housing part (12) in a movable, preferably pivotable, fashion and has elastic properties.

7. The sensor according to claim 1, characterized in that the at least one fastening part (14) can be brought into engagement with the at least one fastening device (16) by means of an oblique plane (28).

8. The sensor according to claim 1, characterized in that the at least one fastening part (14) has an oblong formation (24) on its exterior.

9. The sensor according to claim 1, characterized in that the at least one fastening part (14) is a stamped and bent part.

10. The sensor according to claim 1, characterized in that the at least one fastening part (14) is an injection molded plastic part.

11. The sensor according to claim 1, characterized in that the fastening device (16) is embodied as being of one piece.

12. The sensor according to claim 1, characterized in that the housing part (12) can be inserted in a collar-like fashion into the fastening device (16).

13. The sensor according to claim 1, characterized in that the sensor element (21) is fastened in the housing part (12) by being clipped into it.

14. A sensor (10) for optical detection of foreign bodies, in particular raindrops, on a window, in particular on the windshield of a motor vehicle, having a sensor element (21) that can be coupled to the inside of the window, having at least one fastening device (16) to be fastened, preferably glued, to the window, and having a housing part (12) that contains at least the sensor element (21), where the sensor element (21) can be coupled to the window (18) by means of spring force, characterized by means of a design that is comprised of at least 3 components, in particular an optical body with a coupling medium, a plate with at least one transmitter and receiver, and a housing part (12) with the fastening parts (14).

Sensor for Optical Detection of Foreign Bodies, in Particular Raindrops, on a Window

Prior Art

5 The invention is based on a sensor according to the preamble to the main claim.
DE 44 10 217 A1 has already disclosed a sensor with a number of housing parts. In this
sensor, a fastening device is glued to a window. Two sliders, which are guided in an outer
housing part and function as a fastening means, allow the outer housing part to engage
with the fastening device. The sensor elements are affixed to an inner housing part, which
10 is pressed against the window by means of a spring force acting on the outer housing part.
This type of fastening, however, is complex, expensive, malfunction-prone, and therefore
connected with high costs.

15 Advantages of the Invention

 The sensor according to the invention, with the features of the main claim, has the
advantage that the fastening device is comprised of an easy-to-produce stamped and bent
part and the spring elements are affixed to the housing in a predefined manner. As a
20 result, no separate parts need to be installed and a single housing part suffices, which is
pressed as a whole against the window. If the sensor element is firmly affixed to this
housing part, then the number of moving parts of the sensor is reduced, which prevents a
loss of adjustment due to vibrations of the window.

25 Advantageous modifications of the sensor unit according to the main claim are
possible by means of the steps taken in the dependent claims.

 The contact force of the sensor against the window surface can be kept uniform by
means of two fastening parts disposed opposite each other.

30

If the fastening device has pins for engaging the fastening part, this makes it possible to simply remove the sensor at any time. If the fastening part is attached to the housing in a pivotable fashion and has elastic properties, then the contact force can be precisely adapted to the requirements. During installation, the fastening part is subjected to a continuous increase in force, which is further intensified when, during the rotation of the spring, the force is generated by an oblique plane on which the pins of the fastening device slide. Thus a greater contact force can be produced without complicating the installation.

Recesses in the fastening part for receiving the pins in the installed position assure a very high vibration resistance.

Advantageously, the fastening part has an oblong protrusion on its exterior. This stiffens the fastening part and achieves a better transmission of force during installation.

The manufacture of the fastening part as a stamped and bent part or as an injection molded plastic part is extremely simple and reduces costs.

In addition, if the fastening device is embodied as being of one piece, then particular spacing dimensions are of no concern when the fastening device is glued to the window, which results in a not insignificant time savings. A collar on the fastening device for receiving the sensor housing assures a rapid and simple installation.

An additional advantage is achieved through a modular design of the sensor that is comprised of 3 modules. The housing and the fastening parts constitute the first module, the printed circuit board with the plug connector or socket and the transmitters and receivers constitute the second module, and the optical body, coupling medium, and for example external light baffle constitute the third module. In addition to a precise and rapid assembly of the reciprocally matched components, this design also permits an uncomplicated replacement of individual components.

Drawings

5 An exemplary embodiment of the invention is shown in the drawings and will be explained in detail in the subsequent description.

Fig. 1 is an oblique view of a sensor unit in a housing, with a fastening device before a fastening procedure,

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Fig. 2 is an enlarged oblique view of a fastening part,

Fig. 3 is an oblique view of a sensor unit in a housing, with a fastening device, during a fastening procedure, and

15

Fig. 4 is an oblique view of a sensor unit in a housing, with a fastening device, after a fastening procedure.

Fig. 5 shows a section through a sensor unit before a fastening procedure, and

20

Figs. 6 and 7 show respective embodiments for the fastening part and the housing part of the sensor.

25 Description of the Exemplary Embodiment

Fig. 1 shows a sensor 10 according to the invention, including a housing part 12, two fastening parts 14, and a fastening device 16.

The fastening device 16 is embodied as a plate-shaped part with a recess in the center so that it can receive the housing part 12 in a collar-like fashion. On the side, the fastening device 16 has tabs 19 on which pins 20 are provided, which extend latterly outward. The tabs 19 extend essentially perpendicular to the window 18, as a result of which the pins 20 extend approximately parallel to the window 18. The fastening device 16 is embodied of one piece and is glued to the inside of a window 18.

The housing part 12 is comprised of a shell-shaped plastic part whose sides are provided with pocket-like formations 23, which extend parallel to the window 18 and can receive the fastening parts 14. Likewise, the housing part 12 has a socket 22, which serves as a communications interface of a sensor element 21 (Fig. 5) with a set of evaluation electronics 40.

Fig. 2 shows the fastening part 14 also shown in Fig. 1. The fastening part 14 is an essentially T-shaped stamped sheet metal part comprised of a base part 14a and a top part 14b. The base part 14a is comprised of 3 sections, a curved elastic region 27 as the first section, which is adjoined by a flat region 27a as a second section. The subsequent third section is comprised of a semi-tubular bend 25. The elastic region 27 of the first section curves in the opposite direction from the bend 25 of the third section. The top part 14b, which adjoins the elastic region 27 of the first section of the base part 14a, constitutes a retaining bracket 30 that also has three regions. The first, central region is comprised of a flat piece, the middle of which is provided with an oblong protrusion 24. This section is adjoined on both sides by a second region that is curved toward the bend 25. The ends of the top part 14b are formed by two trapezoidal bracket tabs 26 and thus constitute the third section of the retaining bracket 30. Each of these bracket tabs 26 has a recess 29 at its end oriented toward the second region. The trapezoidal form of the bracket tabs 26 constitute an oblique plane 28 that is disposed on the side oriented away from the window 18 in the installed position.

Fig. 5 shows a sectional view of the housing part 12, with the fastening parts 14 and the sensor element 21. The pocket-like formation 23 is constituted by a clamp-like overhang of 33 embodied at the top of the housing part 12, oriented away from the window 18. The overhang 33 terminates in a cylindrical formation 31 into which the bend 25 of the fastening part 14 can be movably inserted.

The cooperation of the fastening device 16, the housing part 12, and the fastening part 14 is shown in Fig. 3 and will be explained in detail below.

The fastening device 16 is glued to the window 18. The thickness 17 of the fastening device 16 produces a collar into which the housing part 12 is inserted. If the retaining brackets 30, which are fastened so that they can pivot by means of the bend 25 in the pocket-like formations 23 of the housing 12, are pressed toward the window 18, then the bracket tabs 26 slide along the pins 20. The pins 20 therefore slide in relation to the bracket tabs 26 along an oblique plane 28 produced by the trapezoidal form of the bracket tabs 26, as a result of which the curvature of the elastic region 27 is enlarged. Because the elastic fastening parts 14 strive to keep the curvature in the elastic region 27 constant, the housing part 12, together with the sensor element 21, is pressed toward the fastening device 16 and therefore toward the window 18 since the fastening device 16 receives the housing part 12 in a collar-like fashion. The ratio between the cylindrical formations 31 and the semi-tubular bend 25 here is dimensioned so that the dynamic effect does not occur between the overhang 33 and the fastening device 16, but rather between a contact face 32 and the fastening device 16.

In the end position, as shown in Fig. 4, the pins 20 engage in detent fashion in the recesses 29 of the fastening part 14.

During installation, a force in the direction of the window 18 is required in order to cause the pins 20 to slide along the oblique plane 28. The oblong protrusions 24 stiffen

the fastening part 14 and effectively prevent the installation tool from sliding off in the direction of the window 18.

In a variant of the exemplary embodiment, the fastening device 16 can also be
5 comprised of a number of parts. It is also possible for the fastening device 16 to be attached to the window 18 in a manner other than a glued connection.

The fastening parts 14 can, for example, also be coated in order to improve grip during installation. The clamping force of the elastic region 27 can be precisely adjusted
10 by means of a central recess 36 in the base part of the fastening part 14.

As shown in Fig. 6, the base part 14a of the fastening part 14 can also be provided with projections 35 that lock the fastening parts 14 in a definite position on the housing part 12 in the installed position. To that end, the housing part 12 has securing struts 34, as
15 shown in Fig. 7.

For example, the sensor element 21 can also be screwed into the sensor housing 12 or elastically fastened in the sensor housing 12. Likewise, the socket 22 can be fastened to the sensor element 21 and connected by means of a recess in the housing part
20 12.

Claims

1. A sensor (10) for optical detection of foreign bodies, in particular raindrops, on a window, in particular on the windshield of a motor vehicle, having a sensor element (21) that can be coupled to the inside of the window, having at least one fastening device (16) to be fastened, preferably glued, to the window, and having a housing part (12) that contains at least the sensor element (21), where the sensor element (21) can be coupled to the window (18) by means of spring force, characterized in that the housing part (12) has at least one fastening part (14) attached to it, which can be brought into engagement with the fastening device (16) by means of clamping tension.
2. The sensor according to claim 1, characterized in that the sensor element (21) is affixed to the housing part (12).
3. The sensor according to one of claims 1 or 2, characterized in that two fastening parts (14) are disposed opposite each other on the housing part (12).
4. The sensor according to one of the preceding claims, characterized in that the at least one fastening device (16) has pins (20) for engaging with the at least one fastening part (14).
5. The sensor according to claim 4, characterized in that the at least one fastening part (14) has recesses (29) for receiving the pins (20) in the installed position.
6. The sensor according to one of the preceding claims, characterized in that the at least one fastening part (14) is attached to the housing part (12) in a movable, preferably pivotable, fashion and has elastic properties.

7. The sensor according to one of the preceding claims, characterized in that the at least one fastening part (14) can be brought into engagement with the at least one fastening device (16) by means of an oblique plane (28).

5 8. The sensor according to one of the preceding claims, characterized in that the at least one fastening part (14) has an oblong formation (24) on its exterior.

9. The sensor according to one of the preceding claims, characterized in that the at least one fastening part (14) is a stamped and bent part.

10 10. The sensor according to one of claims 1 to 8, characterized in that the at least one fastening part (14) is an injection molded plastic part.

11. The sensor according to one of the preceding claims, characterized in that the fastening device (16) is embodied as being of one piece.

12. The sensor according to one of the preceding claims, characterized in that the housing part (12) can be inserted in a collar-like fashion into the fastening device (16).

20 13. The sensor according to one of the preceding claims, characterized in that the sensor element (21) is fastened in the housing part (12) by being clipped into it.

14. A sensor (10) for optical detection of foreign bodies, in particular raindrops, on a window, in particular on the windshield of a motor vehicle, having a sensor element (21) that can be coupled to the inside of the window, having at least one fastening device (16) to be fastened, preferably glued, to the window, and having a housing part (12) that contains at least the sensor element (21), where the sensor element (21) can be coupled to the window (18) by means of spring force, characterized by means of a design that is comprised of at least 3 components, in particular an optical body with a coupling

medium, a plate with at least one transmitter and receiver, and a housing part (12) with the fastening parts (14).

2017-04-10 10:30:33

Abstract

A sensor for optical detection of foreign bodies, in particular raindrops, on a window, in particular on the windshield of a motor vehicle, having a sensor element (21)
5 that is coupled to the inside of the window and having a fastening device, which is glued to the window. The housing part has a fastening part pivotably attached to it, which can be brought into engagement with the fastening device and the clamping tension.

(Fig. 1)

201140" E3B0E00T

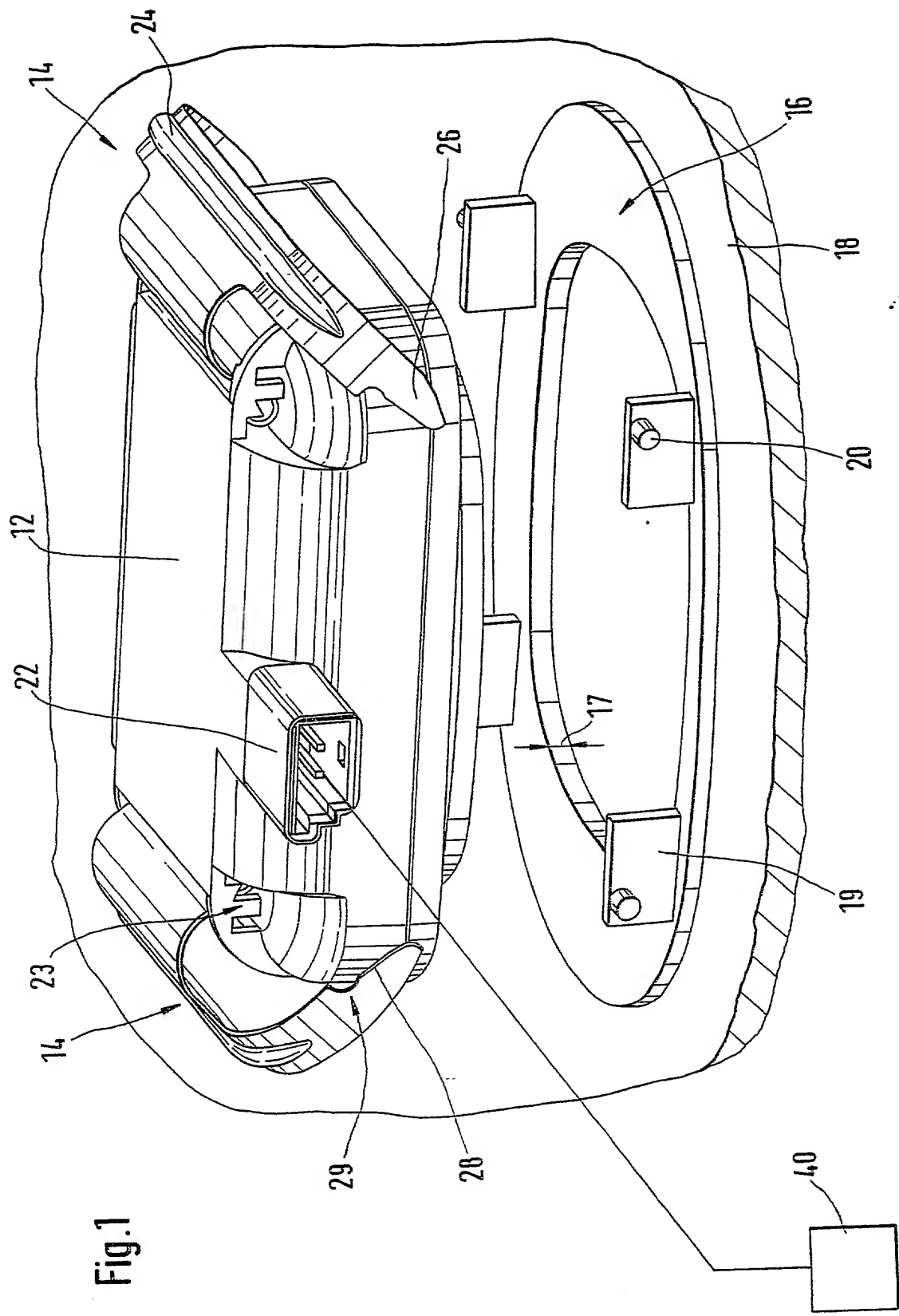


Fig.1

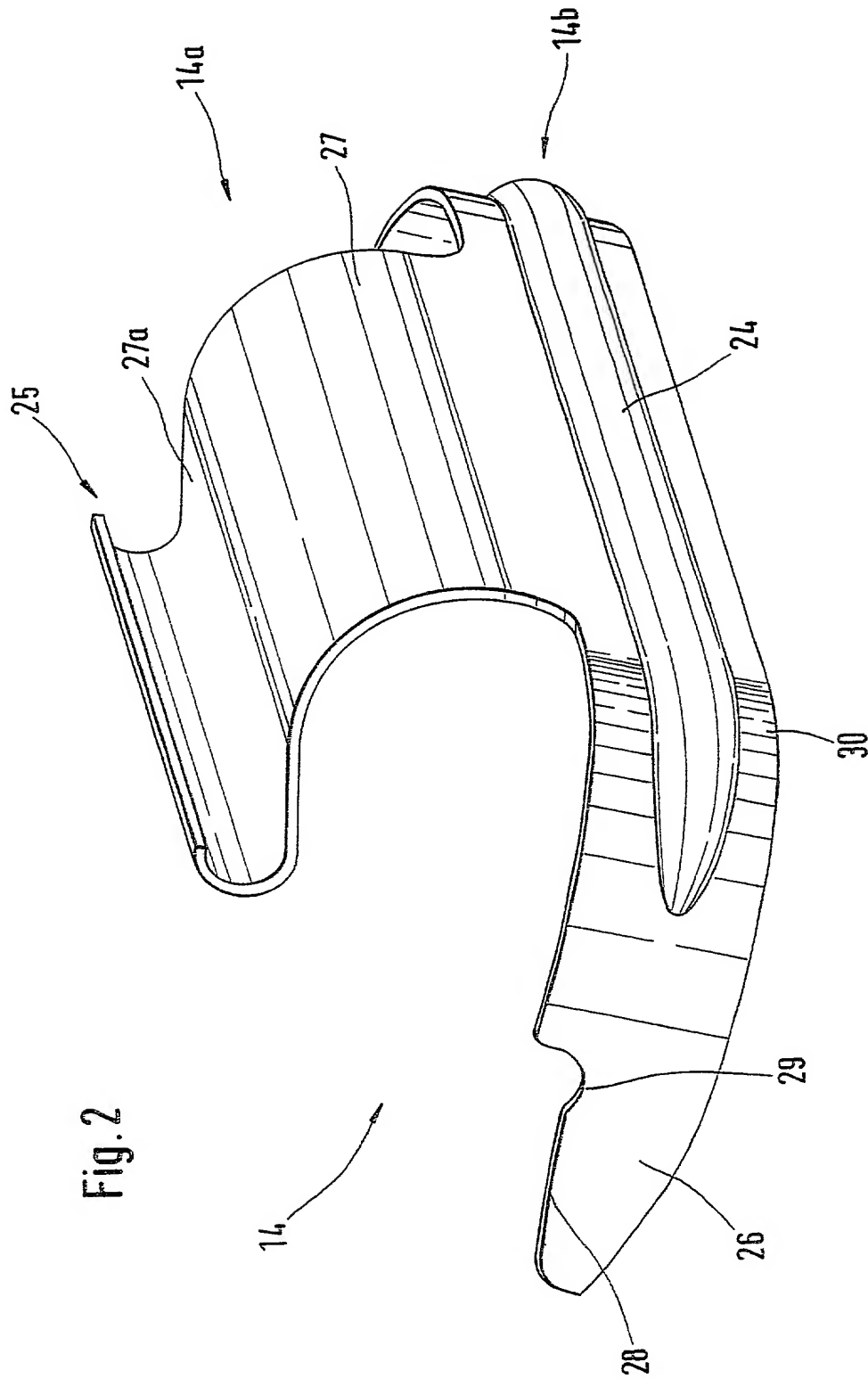


Fig. 2

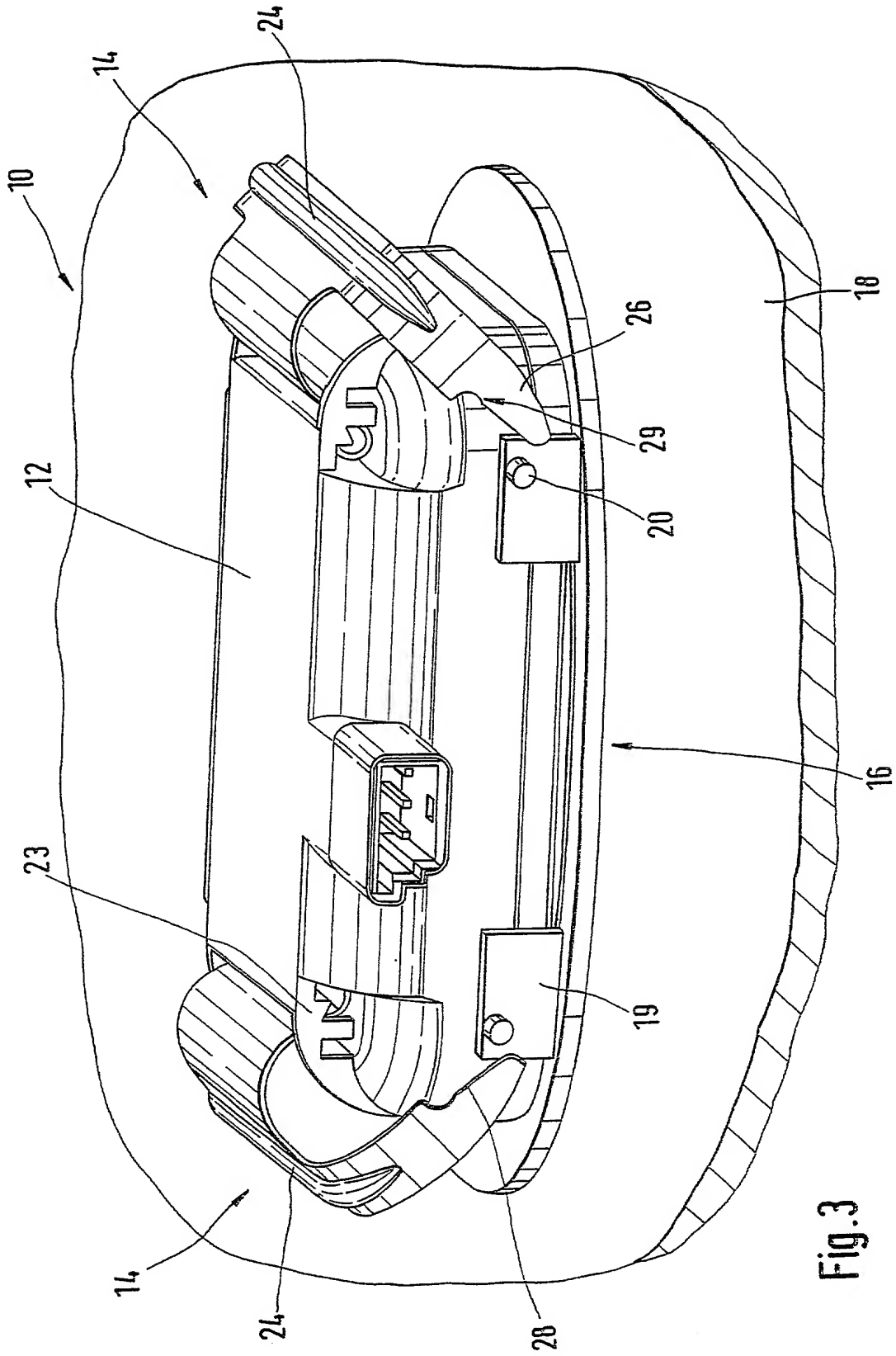
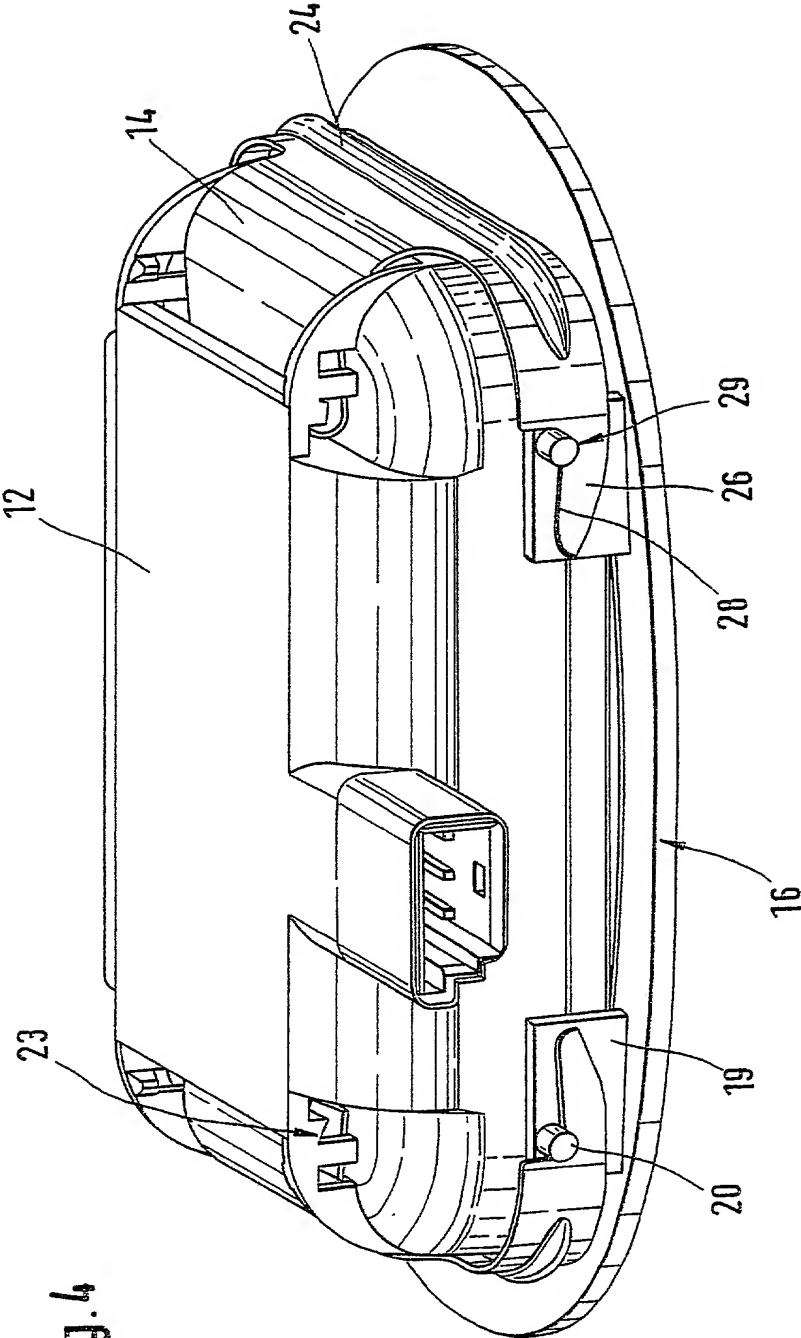


Fig. 3



201140" E80E00T

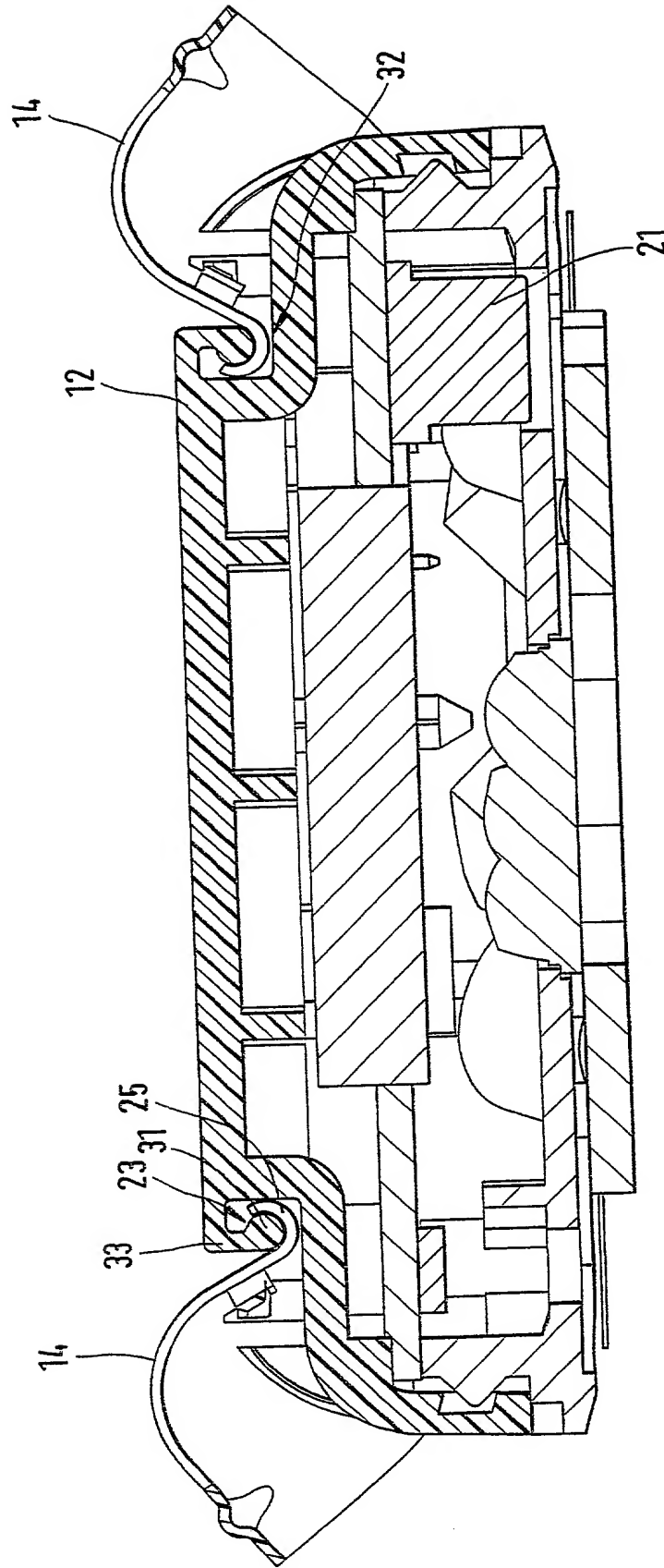
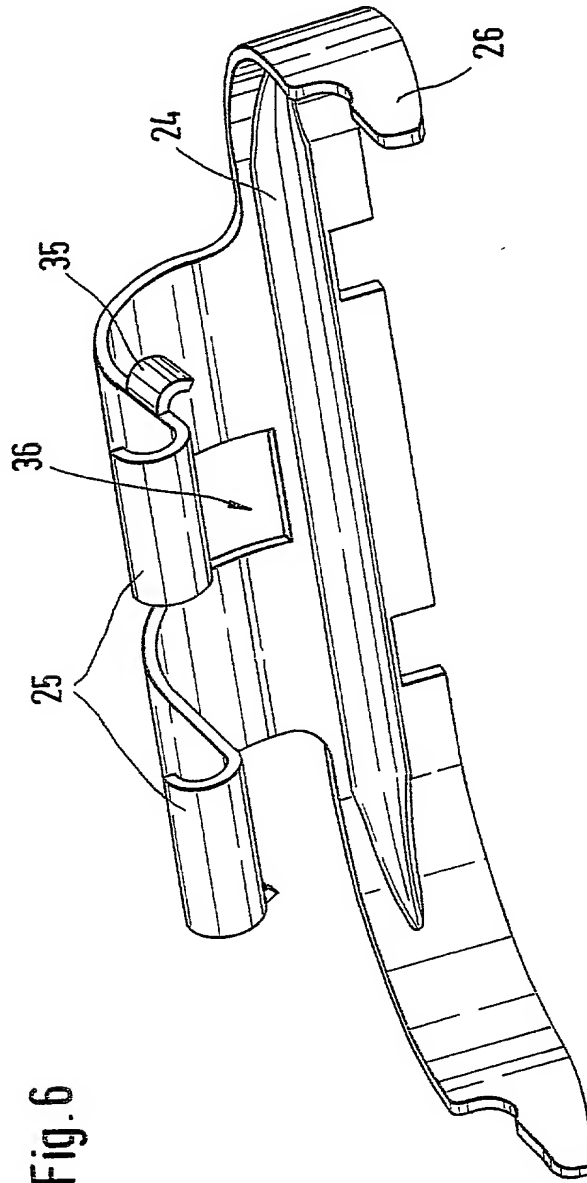


Fig. 5

Fig. 6



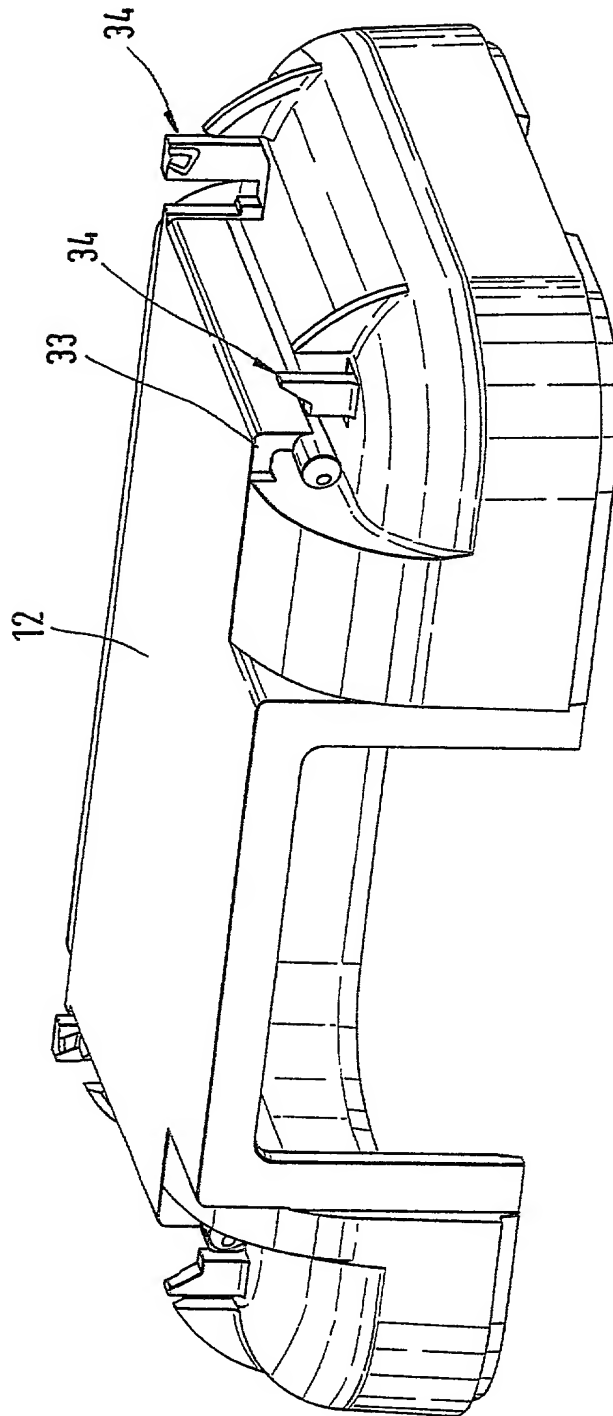


Fig. 7

DECLARATION AND POWER OF ATTORNEY FOR NATIONAL STAGE OF PCT PATENT APPLICATION

As a below-named inventor, I hereby declare that:

Patrick SCHMITT
Norbert HOG
Bruno HODAPP
Rainer PIENTKA
Hans MEIER

Henry BLITZKE
Martin HAGER
Manfred BURKART
Jochen BENZ

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **SENSOR FOR OPTICAL DETECTION OF FOREIGN BODIES, IN PARTICULAR RAINDROPS, ON A WINDOW** the specification of which was filed as PCT International Application number PCT/DE 00/02197 on July 5, 2000.

I hereby state that I believe the named inventor or inventors in this Declaration to be the original and first inventor or inventors of the subject matter which is claimed and for which a patent is sought.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose all information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365 (b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior foreign application(s):

Priority claimed:

199 33 640.7
(Number)

(Number)

GERMANY
(Country)

(Country)

JULY 17, 1999
(Date filed)

(Date filed)

<u>X</u>	<u> </u>
Yes	No
<u> </u>	<u> </u>
Yes	No

As a named inventor, I hereby appoint the following attorney to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

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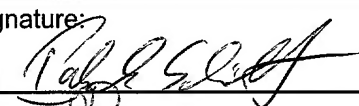
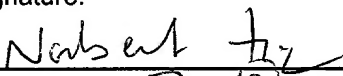

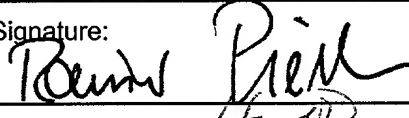
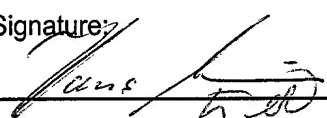
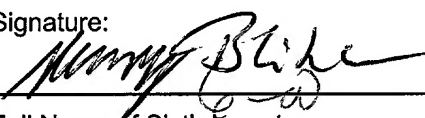
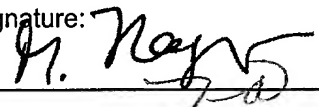
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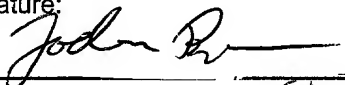
I hereby declare that all statements made herein of my own knowledge are true and that all statements

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made on information and belief are believed to be true; and further that these statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such wilful false statement may jeopardize the validity of the application or any patent issued thereon.

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